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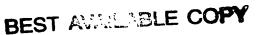
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(54) Title: NEW TYPE OF CATALYTIC MATERIALS BASED ON ACTIVE METAL-HYDROGEN-ELECTRONEGATIVE EL-EMENT COMPLEXES FOR HYDROGEN TRANSFER

(57) Abstract: The present invention relates to a composition of matter prepared in accordance with a method comprising the steps of: (a) combining a substance selected from the group consisting of: metal or metalloid, or an alloy thereof, or a compound thereof, or an homogeneous or inhomogeneous combination of at least two of the metal or metalloid, the alloy thereof, or the compound thereof, with a source of hydrogen, to form a first intermediate, (b) milling the first intermediate to effect reaction between the substance and the hydrogen to form a second intermediate, (c) combining the second intermediate with a source of an electronegative element, to form a third intermediate, and (d) milling the third intermediate to effect reaction between the second intermediate and the electronegative element. The composition of matter could be used as a hydrogen transfer facilitator or catalyst to enhance the kinetics of hydrogenation and dehydrogenation reactions.







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PCT/CA 03/00960 A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C01B3/00 B01J31/12 B01J31/26 B01J31/40 According to International Patent Classification (IPC) or to both national classification and IPC B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) C01B B01J IPC 7 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Electronic data base consulted during the International search (name of data base and, where practical, search terms used) WPI Data, PAJ, EPO-Internal C. DOCUMENTS CONSIDERED TO BE RELEVANT Relevant to claim No. Citation of document, with Indication, where appropriate, of the relevant passages 1,2,5,6, "metal oxides as OELERICH W ET AL: Χ catalysts for improved hydrogen sorption 13,14, 16, in nanocrystalline Mg-based materials " 24-26, JOURNAL OF ALLOYS AND COMPOUNDS, ELSEVIER 29,30, SEQUOIA, LAUSANNE, CH, 37,38, vol. 315, 2001, pages 237-242, XP002263119 40,41 ISSN: 0925-8388 59,62, the whole document Α 65 - 67-/--Patent family members are listed in annex. Further documents are listed in the continuation of box C. X Special categories of cited documents: "T" later document published after the International filing date or priority date and not in conflict with the application but dited to understand the principle or theory underlying the "A" document defining the general state of the art which is not considered to be of particular relevance Invention "X" document of particular relevance; the claimed invention "E" earlier document but published on or after the International cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such docudocument referring to an oral disclosure, use, exhibition or ments, such combination being obvious to a person skilled in the art. other means document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 18/12/2003 27 November 2003

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